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10/617,353	07/11/2003	Masaki Umayabashi	MA-580-US	1535

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MCGINN INTELLECTUAL PROPERTY LAW GROUP, PLLC
8321 OLD COURTHOUSE ROAD
SUITE 200
VIENNA, VA 22182-3817

EXAMINER

CHOI, EUNSOOK

ART UNIT	PAPER NUMBER
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2619

MAIL DATE	DELIVERY MODE
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11/15/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/617,353

Applicant(s)

UMAYABASHI ET AL.

Examiner

Eunsook Choi

Art Unit

2619

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 September 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-97 is/are pending in the application.
- 4a) Of the above claim(s) See Continuation Sheet is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,5-12,18-22,49-51,56,57,60,65-82,84,89,90 and 93 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

Continuation of Disposition of Claims: Claims withdrawn from consideration are 3,4,13-17,23-48,52-55,58,59,61-64,83,85-88,91 and 92.

DETAILED ACTION

Election/Restrictions

1. Applicant's election of Group I, claims 1,2, 5-12, 18-22, 49-51, 56, 57, 60, 65-82, 84, 89, 90, and 93, in the reply filed on 9/11/2007 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)). Claims 3, 4, 13-17, 23-48, 52-55, 58, 59, 61-64, 83, 85-88, 91, and 92 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to nonelected groups II, III, IV and V. Claim 13 is withdrawn because its dependency to claim 3 in group V.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1, 2, 5-13, 18-22, 49-51, 56, 57, 60, 65-67, 69, 70, 77-80, 82, 84, 89, 90, and 93 are rejected under 35 U.S.C. 102(e) as being anticipated by Hama (US PGPUB 20040202171).

Regarding claims 1, 49, 56, and 82, Hama teaches in Fig 2, Fig 22, and paragraph [0020] a MAC frame having an IP packet enters the edge router 1 from the

terminal on the transmitting side, the MPLS header is assigned to the frame (adding, to applied said data frame, information about forwarding to an egress edge node to said destination to make an expansion frame), the frame is transmitted over the MPLS network while the label value of the label field is pushed, swapped and popped, and the frame is transmitted to the destination terminal device upon having its MPLS header removed by the edge router 5a(relaying said data frame based on said forwarding information-of said added expansion tag to transfer the frame to said egress node by each node on said network).

Regarding claims 2, 51, and 84, Hama teaches in Fig 22 and paragraph [0020] a MAC frame having an IP packet enters the edge router 1 from the terminal on the transmitting side, the MPLS header is assigned to the frame (adding, to applied said data frame, information about forwarding to an egress edge node to said destination), the frame is transmitted over the MPLS network while the label value of the label field is pushed, swapped and popped, and the frame is transmitted to the destination terminal device upon having its MPLS header removed by the edge router 5a(relaying said data frame based on said forwarding information). Hama further teaches Fig. 2 and paragraph [0072] a VPN identification unit identifies a VPN by referring to the VID of the received VLAN packet and inputs the packet to a tag/label converter (subrouter) that corresponds to this VPN. The subrouter corresponding to the identified VPN has a table which already stores the correspondence between VLAN and VPN identifiers (VPN labels) that specify VPNs to which the VLANs specified by the VIDs belong. The edge router further includes a route decision unit for deciding beforehand a route to a

receive-side edge router using a routing protocol and stores a forwarding label, which specifies the decided route, in an MPLS network routing table in correspondence with the IP address of the receive-side edge router (information about customers to which said source and said destination belong).

Regarding claim 50, Hama teaches in Fig 2, Fig 22, and paragraph [0020] a MAC frame having an IP packet enters the edge router 1 from the terminal on the transmitting side, the MPLS header is assigned to the frame (adds, to said data frame, an expansion tag containing information about forwarding), the frame is transmitted over the MPLS network while the label value of the label field is pushed, swapped and popped, and the frame is transmitted to the destination terminal device upon having its MPLS header removed by the edge router 5a (receives said expansion frame to transfer the frame to a path to each node on said network based on said forwarding information). Hama further teaches in paragraphs [0005], and [0101]-[0104] by grouping, broadcast frames now need only be relayed within the group (applied said data frame is a frame to be broadcast).

Regarding claims 57 and 90, Hama teaches in Fig 2, Fig 22, and paragraph [0020] the frame is transmitted over the MPLS network while the label value of the label field is pushed, swapped and popped, and the frame is transmitted to the destination terminal device upon having its MPLS header removed by the edge router 5a (receives an expansion frame with an expansion tag). Hama teaches in paragraphs [0005], and [0101]-[0104] by grouping, broadcast frames now need only be relayed within the group

(forwarding information of an ingress edge node which has received said frame to transfer the frame to a path to each node on said network).

Regarding claim 89, Hama teaches in Fig 2, Fig 22, and paragraph [0020] the frame is transmitted over the MPLS network while the label value of the label field is pushed, swapped and popped, and the frame is transmitted to the destination terminal device upon having its MPLS header removed by the edge router (receiving an expansion frame with an expansion tag including information about forwarding to an egress edge node to said destination added to applied said data frame to transfer the frame to a path to said egress node).

Regarding claims 60 and 93, Hama teaches in Fig 22 and paragraph [0020] a MAC frame having an IP packet enters the edge router 1 from the terminal on the transmitting side, the MPLS header is assigned to the frame, the frame is transmitted over the MPLS network while the label value of the label field is pushed, swapped and popped, and the frame is transmitted to the destination terminal device upon having its MPLS header removed by the edge router 5a(receives an expansion frame with an expansion tag including information about forwarding to an egress edge node to said destination). Hama further teaches Fig. 2 and paragraph [0072] a VPN identification unit identifies a VPN by referring to the VID of the received VLAN packet and inputs the packet to a tag/label converter (subrouter) that corresponds to this VPN. The subrouter corresponding to the identified VPN has a table which already stores the correspondence between VLAN and VPN identifiers (VPN labels) that specify VPNs to which the VLANs specified by the VIDs belong. The edge router further includes a

route decision unit for deciding beforehand a route to a receive-side edge router using a routing protocol and stores a forwarding label, which specifies the decided route, in an MPLS network routing table (forwarding-label memory) in correspondence with the IP address of the receive-side edge router (information about forwarding to an egress edge node to said destination and customer information of said destination).

Regarding claim 5, Hama teaches the limitations for claim 1 as applied above. Hama further teaches Fig. 2, Fig. 3, Fig. 4 and paragraph [0072] a VPN identification unit identifies a VPN by referring to the VID of the received VLAN packet and inputs the packet to a tag/label converter (subrouter) that corresponds to this VPN. The subrouter corresponding to the identified VPN has a table which already stores the correspondence between VLAN and VPN identifiers (VPN labels) that specify VPNs to which the VLANs specified by the VIDs belong. The edge router further includes a route decision unit for deciding beforehand a route to a receive-side edge router using a routing protocol and stores a forwarding label, which specifies the decided route, in an MPLS network routing table (forwarding-label memory) in correspondence with the IP address of the receive-side edge router (expansion tag is generated based on network information of said data frame and generated said expansion tag is added to make said expansion frame).

Regarding claim 6, Hama teaches the limitations for claim 1 as applied above. Hama teaches in Fig 22 and paragraph [0020] a MAC frame having an IP packet the destination IP address of which is 10.1.100.0/24 enters the edge router 1 from the terminal on the transmitting side, the MPLS header is assigned to the frame, the frame

is transmitted over the MPLS network while the label value of the label field is pushed, swapped and popped, and the frame is transmitted to the destination terminal device upon having its MPLS header removed by the edge router 5a (expansion tag is deleted from said expansion frame to make said data frame and said data frame is transferred to said transfer destination).

Regarding claim 7, Hama teaches the limitations for claim 1 as applied above. Hama teaches in Fig. 2 an Ethernet frame.

Regarding claim 8, Hama teaches the limitations for claim 6 as applied above. Hama teaches in Fig. 2 and Fig. 3 a VLAN tag of said Ethernet frame is replaced by MPLS VPN labels (an expansion tag).

Regarding claim 9, Hama teaches the limitations for claim 7 as applied above. Hama teaches in Fig. 3 MPLS VPN labels are inserted immediately after a source MAC address of said Ethernet frame.

Regarding claim 10, Hama teaches the limitations for claim 7 as applied above. Hama teaches in Fig. 13 (step 301) and paragraph [0095] when a packet arrives as an input, the transmit-side edge router checks to see whether the packet has been tagged. Since the packet is an MPLS packet if it has not been tagged, the edge router executes ordinary MPLS processing (said Ethernet frame fails to have said VLAN tag, said expansion tag is added between a source MAC address and Ethernet attribute information to make said expansion frame).

Regarding claim 11, Hama teaches the limitations for claim 1 as applied above. Hama teaches in Fig. 12 and paragraph [0092] an example of transmission using label

information (said forwarding information is identification information composed of identifier information of said egress node or label information for reaching said egress node).

Regarding claim 12, Hama teaches the limitations for claim 1 as applied above. Hama teaches in Fig. 12 (PKT2) IP Forwarding Label (identifier information of said egress node or label information for reaching said egress node) and VPN Identification Label (identifier information of said ingress node).

Regarding claim 13, Hama teaches the limitations for claim 3 as applied above. Hama teaches in Fig. 12 (PKT2) VPN Identification Label (identifier information of said ingress node).

Regarding claims 19 and 77, Hama teaches the limitations for claims 1 and 49 as applied above. Hama teaches in Fig. 4, 10B, 11A-11C, and 19 VPN Label and routing tables of edge (PE) routers (said ingress node, a core node, and said egress node have table which makes an address of said transfer destination and identification information of said egress node and a table which makes identification information of said egress node and output port information correspond with each other).

Regarding claims 20 and 78, Hama teaches the limitations for claims 1 and 49 as applied above. Hama teaches in Fig. 4, 10B, 11A-11C, and 19 VPN Label and routing tables of edge (PE) routers (said ingress node, a core node, and said egress node have table which makes an address of said transfer destination and identification information of said egress node and a table which makes identification information of said egress node and output port information correspond with each other). Hama inherently teaches

in paragraphs [0100]-[0102] upon receiving the ARP packet (broadcast packet), the edge router PE A 211 creates a copy of the packet and directs it through the other edge routers PE B 212 and PE C 213 (a table which makes identification information of said ingress node and one or a plurality of output port information correspond with each other).

Regarding claims 21 and 79, Hama teaches the limitations for claims 20 and 49 as applied above. Hama teaches in Fig. 13 a VLAN ID (an existing VLAN tag value or a group identifier obtained by grouping a part of existing VLAN tags or a group identifier obtained by grouping all the existing VLAN tags).

Regarding claims 22 and 80, Hama teaches the limitations for claims 1 and 49 as applied above. Hama teaches in Fig. 4, 10B, 11A-11C, and 19 VPN Label and routing tables of edge (PE) routers (said ingress node, a core node, and said egress node have table which makes an address of said transfer destination and identification information of said egress node and a table which makes identification information of said egress node and output port information correspond with each other). Hama further teaches Fig. 2 and paragraph [0072] a VPN identification unit identifies a VPN by referring to the VID of the received VLAN packet and inputs the packet to a tag/label converter (subrouter) that corresponds to this VPN. The subrouter corresponding to the identified VPN has a table which already stores the correspondence between VLAN and VPN identifiers (VPN labels) that specify VPNs to which the VLANs specified by the VIDs belong. The edge router further includes a route decision unit for deciding beforehand a route to a receive-side edge router using a routing protocol and stores a forwarding

label, which specifies the decided route, in an MPLS network routing table (forwarding-label memory) in correspondence with the IP address of the receive-side edge router (customer information of said transfer destination correspond with each other).

Regarding claim 65, Hama teaches the limitations for claim 49 as applied above. Hama teaches in Fig. 2, Fig. 4, and paragraph [0072] a VPN identification unit 122 identifies a VPN by referring to the VID of the received VLAN packet (extracting frame attribute information of applied said data frame to an input port of the node) and inputs the packet to a tag/label converter that corresponds to this VPN (generating said expansion tag based on said frame attribute information). The subrouter corresponding to the identified VPN has a table 124 which, as shown in FIG. 4, already stores the correspondence between VLAN IDs (VIDS) and VPN identifiers (VPN labels) that specify VPNs to which the VLANs specified by the VIDs belong (to convert the frame into an expansion frame).

Regarding claim 66, Hama teaches the limitations for claim 49 as applied above. Hama teaches in Fig. 4 a table storing correspondence between VLAN IDs and VPN identifiers (a correspondence information table in which information about correspondence between frame attribute information generated by said frame attribute detector and network information). Hama teaches in Fig. 2, Fig. 4, and paragraph [0072] a VPN identification unit identifies a VPN by referring to the VID of the received VLAN packet and inputs the packet to a tag/label converter that corresponds to this VPN (after reading network information corresponding to said frame attribute information, generates an expansion tag based on said network information).

Regarding claim 67, Hama teaches the limitations for claim 49 as applied above. Hama teaches in Fig. 2 Ethernet line card (a data frame applied to an input port of said node is an Ethernet frame) and in Fig. 3 swapping between a VLAN packet and a MPLS packet (inserts said expansion tag after said destination MAC address).

Regarding claim 69, Hama teaches the limitations for claim 49 as applied above. Hama teaches in Fig. 14 and paragraph [0099] the edge router removes the Layer-2 label and adds a tag that contains the VID to create a VLAN packet (step 316) (deleting said expansion tag included in said frame with an expansion tag to output the frame as a data frame).

Regarding claim 70, Hama teaches the limitations for claim 49 as applied above. Hama teaches in Fig 2, Fig. 19, Fig 22, and paragraph [0015] a terminal device on the transmitting side is connected to the edge router 1 via a LAN or the like, and a terminal device at the destination having an IP address 10.1.100.0/24 is connected to the edge router 5 via a router and a LAN. If the two terminal devices are to communicate, an LSP (Label Switched Path) is set up between the edge routers 1, 5, to which the terminals are connected, in accordance with an LDP (Label Distribution Protocol) and through use of a label, and label tables 1a to 4a are formed in the MPLS routers 1 to 4, respectively, that form this LSP (receiving an expansion frame transferred from said frame processing element to obtain output port information based on network information stored in an expansion tag in said expansion frame, and receiving an expansion frame and said output port information transferred from said frame

forwarding unit to output said frame with an expansion tag to a port as set forth in said output port information).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hama (PGPUB 20040202171) and in view of Jha (US Patent 7161946).

Regarding claim 18, Hama teaches the limitations for claim 1 as applied above. Hama teaches in Fig. 2 a four-byte MPLS label for the 1st layer and 2nd layer (a length of said expansion tag is 32 bits). However, Hama does not expressly teach a length of a storage region of said expansion tag is an integral multiple of 32 bits. Jha teaches in Fig. 3 a multiple of MPLS labels and each of them has 32 bits. It would have been obvious for one of ordinary skill in the art at the time of the invention was made to have an integral multiple of 32 bits for a storage region of said expansion tag in order to insert an MPLS label into the frame while retaining the network layer protocol identification and to present the frame in the MPLS network per the MPLS label (Col. 1 Lines 35-44 Jha).

6. Claims 68 and 70 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hama (PGPUB 20040202171) and in view of Chase (US Patent 7257118).

Regarding claims 68 and 70, Hama teaches the limitations for claims 65 and 69 as applied above. Hama teaches in Fig. 14 and paragraph [0099] the edge router removes the Layer-2 label (an expansion tag separation unit) and adds a tag that contains the VID to create a VLAN packet (step 316). Next, the edge router refers to the VPN label table to find the output interface and sends the VLAN packet to this interface (step 317). The destination user router CPE receives the VLAN packet and executes predetermined processing. However, Hama does not expressly teach recalculating an FCS of said Ethernet frame transferred from the expansion tag separation unit to rewrite the FCS. Chase teaches in Fig. 2, Fig. 3, and Col. 1 Lines 64-67 the remainder of the frame relay frame is included and a frame check sum (FCS) is computed. The frame is then passed down to the physical layer and transmitted to the SPN. It would have been obvious for one of ordinary skill in the art at the time of the invention was made to recalculate an FCS of said Ethernet frame transferred from the expansion tag separation unit to rewrite the FCS in order to output proper frames for different interfaces.

7. Claims 72-76, 81 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hama (PGPUB 20040202171) and in view of Kompella (US Patent 7,136,374).

Regarding claim 72, Hama teaches the limitations for claim 71 as applied above. Hama teaches in Fig 2, Fig. 19, Fig 22, and paragraph [0015] a terminal device on the

transmitting side is connected to the edge router 1 via a LAN or the like, and a terminal device at the destination having an IP address 10.1.100.0/24 is connected to the edge router 5 via a router and a LAN. If the two terminal devices are to communicate, an LSP (Label Switched Path) is set up between the edge routers 1, 5, to which the terminals are connected, in accordance with an LDP (Label Distribution Protocol) and through use of a label, and label tables 1a to 4a are formed in the MPLS routers 1 to 4, respectively, that form this LSP (extracting forwarding information from an expansion tag of said expansion frame received). It is inherent in Hama, however, Hama does not expressly teach an expansion tag information table indicative of correspondence between forwarding information in an expansion tag of said expansion frame received and output port information, and referring to said expansion tag information table to obtain output port information from the forwarding information. Kompella teaches in Fig. 6, Fig. 9, and Fig.10 LSP in MPLS domain and information stored at a provider/customer edge device. It would have been obvious for one of ordinary skill in the art at the time of the invention was made to have an expansion tag information table indicative of correspondence between forwarding information and output port information, and to refer to the expansion tag information table to obtain output port information from the forwarding information in order to minimize the number of routes that need to be stored on the service provider's routers and/or to support multicasting (Col. 3 Lines 35-42 Kompella).

Regarding claim 73, Hama and Kompella teach the limitations for claim 72 as applied above. Hama teaches in Fig 2, Fig 22, and paragraph [0020] the frame is

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transmitted over the MPLS network while the label value of the label field is pushed, swapped and popped, and the frame is transmitted to the destination terminal device upon having its MPLS header removed by the edge router 5a (identifier information of said egress node or label information for reaching said egress node).

Regarding claims 74 and 75, Hama and Kompella teach the limitations for claim 72 as applied above. Hama teaches in Fig. 12 and paragraphs [0005], and [0101]-[0104] by grouping, broadcast frames now need only be relayed within the group (forwarding information is identification information composed of identifier information of said egress node or label information for reaching said egress node and identifier information of said ingress node).

Regarding claim 76, Hama and Kompella teach the limitations for claim 72 as applied above. Hama teaches in Fig. 6, Fig. 12, and paragraph [0093] the MPLS packet subsequently arrives at the target receive-side edge route along the preset route through the MPLS network while its forwarding label is replaced (said forwarding information is identification information composed of identifier information of said egress node and identifier information of a domain in each hierarchy to which the node belongs or label information for reaching said egress node).

Regarding claim 81, Hama teaches the limitations for claim 49 as applied above. Hama teaches in Fig. 6, Fig. 12, and paragraph [0093] the MPLS packet subsequently arrives at the target receive-side edge route along the preset route through the MPLS network while its forwarding label is replaced (a table which makes identification information of said egress node and identification information of a domain in each

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hierarchy to which the node belongs in an ingress node, a core node, and an egress node). It is inherent in Hama, however, Hama does not expressly teach a table which makes identification information of said egress node, information of a domain to which the node belongs, and output port information correspond with each other. Kompella teaches in Fig. 6, Fig. 9, and Fig.10 LSP in MPLS domain and information stored at a provider/customer edge device. It would have been obvious for one of ordinary skill in the art at the time of the invention was made to have a table which makes identification information of said egress node, information of a domain to which the node belongs, and output port information correspond with each other in order to minimize the number of routes that need to be stored on the service provider's routers and/or to support multicasting (Col. 3 Lines 35-42 Kompella).

Conclusion

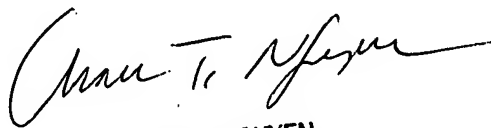
8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eunsook Choi whose telephone number is 571-270-1822. The examiner can normally be reached on Monday-Friday 8:00-5:00 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chau Nguyen can be reached on 571-272-3126. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Eunsook Choi
11/07/2007



CHAU NGUYEN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600